Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of monitoring a chemical reaction in which substance A is converted to product B, said method comprising: incubating substance A in the presence of a signaling aptamer that has a first affinity for substance A and a second, different affinity for product B, determining the amplitude of the signal based on the affinity of the aptamer for substance A and monitoring for a change in amplitude of the signal wherein a change in amplitude of the signal is indicative of a modification of substance A whereby binding of the signaling aptamer to substance A is disrupted..

2. (Cancelled)

3. (Original) A method according to claim 1, wherein an increase in the amplitude of the signal is indicative of binding of the aptamer to product B.

4. (Original) A method according to claim 1, wherein a decrease in the amplitude of the signal is indicative of binding of the aptamer to product B.

5. (Original) A method according to claim 1, wherein the signaling aptamer has afluorophore and a quencher in proximity.

6. (Original) A method according to claim 5, wherein the signaling aptamer is a signaling aptamer complex (SAC) comprising an aptamer oligonucleotide and a quencher modified oligonucleotide capable of forming a duplex with the aptamer oligonucleotide in the absence of an aptamer binding target.

7. (Original) A method according to claim 1, wherein the chemical reaction is addition of a functional group to substance A.

8. (Original) A method according to claim 1, wherein the chemical reaction is removal of a functional group from substance A.

9. (Original) A method according to claim 1, wherein the chemical reaction is a phosphorylation reaction.

10. (Original) A method according to claim 1, wherein substance A is a substrate for an enzyme and product B is a product of an enzymatic reaction.

11. (Original) A method according to claim 10, wherein the substrate is selected from the group consisting of inosine, adenosine, cAMP, AMP, ADP and ATP.

12. (Original) A method according to claim 10, wherein the enzyme is selected from the group consisting of a phosphatase, a deaminase, an adenyl cyclase and a phosphodiesterase.

13. (Original) A method of detecting the presence of an enzyme capable of converting a substrate to a product in a test sample, said method comprising: incubating the substrate with a signaling aptamer that has a different affinities for the substrate and the product in the presence of the test sample and monitoring for a change in signal, wherein a change in signal intensity indicates enzymatic activity in the test sample.

14. (Original) A method according to claim 13, wherein an increase in signal intensity indicates the presence of the enzyme.

15. (Currently Amended) A method according to claim [[14]] 13, wherein a decrease in signal intensity indicates the presence of the enzyme.

16. (Original) A method of quantitating an enzyme in a sample, said method comprising incubating a substrate with a signaling aptamer in the presence of the sample, measuring the amplitude of the signal generated and comparing the amplitude of the signal to a standard curve of signal relative to enzyme concentration.

17. (Original) A method of screening a test compound for inhibition of an enzyme, said method comprising: incubating a substrate with a signaling aptamer that has a first affinity for the substrate and a second, different affinity for product, in the presence of the test compound and the enzyme; and monitoring for a change in amplitude of the signal, wherein a change in signal is indicative of enzyme activity and no change is indicative of inhibition of the enzyme.

18. (Original) A method according to claim 17, wherein the enzyme is selected from the group consisting of a phosphatase, a deaminase, an adenyl cyclase and a phosphodiesterase.

19. (Currently Amended) An enzyme inhibitor identified according to the method of claim [[18]] 17.

20. (Original) A kit for detecting modification of a substrate, said kit comprising a substrate and a signaling aptamer having an affinity for the substrate, wherein the signaling aptamer has a different affinity for modified substrate.

21. (New) A kit for screening for enzyme inhibitors, said kit comprising a substrate, an enzyme capable of acting on the substrate to produce a product, and a signaling aptamer having a first affinity for the substrate and a second affinity for the product.